

>>>>>><<<<<<<

THE  
PLOTTER

CLACKAMAS COUNTY AREA T/S  
USERS GROUP  
NEWS LETTER

\*\*\*\*

VOLUME 7

\*\*

NUMBER 5

\*\*\*\*\*

MAY

1989

EDITED BY: DICK WAGNER  
CHAIRMAN: MICHAEL CARVER  
V/CHAIRMAN: MERLIN RAYMOND  
SECRETARY: BETTY SCHAFFLER  
TREASURER: ROD GOWEN  
PR OFFICER: BOB EVANS  
LIBRARIAN: GAYLEN BENCH  
\*\*\*\*\*

DINNER

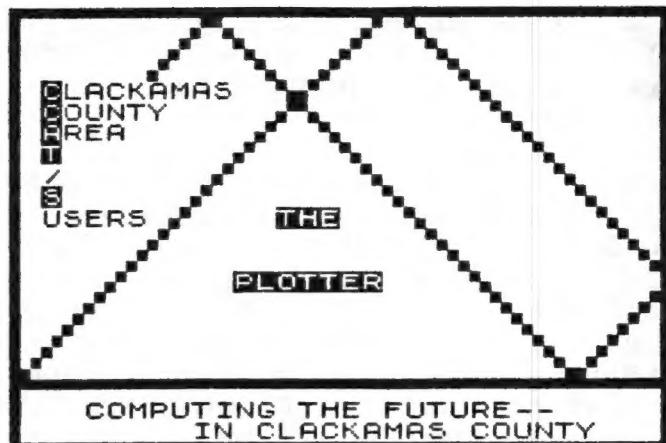
The MAY dinner will be:

on: FRI., MAY 12, 1989

the dinner will be at: 7:00 P.M.  
at GATES RESTAURANT,  
18203 McLoughlin Blvd  
at Jennings Ave., Gladstone.  
(See details of location)

WHAT YOU WILL FIND IN THIS ISSUE

MEETINGS-----PAGE 1  
CHAIRMAN'S CORNER--SOAP BOX--PAGE 1  
CONTINUED---PAGE 2  
MAY DINNER-----PAGE 2  
LARGE SCREEN DUMP-----PAGE 2  
CONTINUED---PAGE 3  
LARKEN LINES-----PAGE 3  
CONTINUED---PAGE 4  
BITS & BYTES-----PAGE 4  
SECRETARY'S SECRETS-----PAGE 5  
MAKE A LOGO-----PAGE 5  
CONTINUED---PAGE 6  
FOR LAUGHS-----PAGE 6  
FROM THE EDITOR'S DESK-----PAGE 6  
CONTINUED---PAGE 7  
ADS/NOTICE/SUBSCRIPTION-----PAGE 8



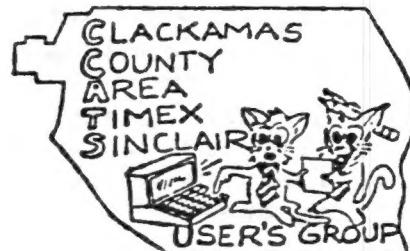
SOAP BOX

Well, having missed only one meeting (March) it certainly felt like I had missed more. It made me even more aware of the importance of our group. I pity the poor souls out there who are struggling to keep the faith without the support of a local users group. How many of them have given up the effort?

Don't forget our special dinner meeting in May (and don't forget to invite your spouse, children, or girlfriend/boyfriend). [Special Note: If you are bringing your spouse, it is prudent to not bring your girlfriend/boyfriend!] This is intended as a family affair with no planned business meeting.

As diehard Sinclairites look out over the horizon, they see their world starting to crumble at the edges (disappearing hardware/software support, vendors becoming Ghost Riders in the Sky, etc.). We now have a White Knight coming to our aid in the guise of Bob Currie (Sysop of The Bull Pen BBS). We all owe him a great deal of gratitude, he isn't even a Sinclair user. Bob has given us the use of his BBS to attempt a National (perhaps even an International) network to help us Sinclairites unite the remaining fold, and hopefully pull in some of

>>>>



the lost sheep. Having seen the SLOW start of a promising SNUG, Bob's offer may just be the kick in the pants we need.

HOWEVER..... The work is our's, we must support Bob's offer by posting messages of interest to fellow Sinclairites on his board (in the hopes of going out as an "official" echo). Thanks should also go out to Rod Gowen for his efforts in soliciting Bob's assistance and to all out there who are assisting us in our QUEST!!!! Time to get off my soap box.

Sinclairly, Michael E. Carver

#### —MAY DINNER—

This year members opted for a social evening on May 12 in place of a business meeting. This is the opportunity to get to know the family members who stay at home while you spend an evening with your computering friends.

The location is Gates Restaurant, 18203 McLoughlin Blvd., Gladstone. There will be a wide choice of entries. Soup, salad and bread are served family style. We will have a part of the restaurant set aside for our group. The time is 7:00 PM which may make it difficult for a few members. The restaurant can easily accommodate this problem so don't let it keep you from attending.

To reach this location from Oregon City, I-205, etc, from our normal meeting place continue north across the Clackamas River on McLoughlin Blvd to the 4th stop light after crossing the bridge. Gates will be on your immediate left before the light. There is a safe turning lane here.

From Portland and Milwaukie on McLoughlin Blvd, continue south well past GI JOES to the stop light at the top of the grade at Jenning Lodge. Immediately past the intersection make a right turn into the parking area.

#### LARGE SCREEN DUMP

Comments by The Editor

The original of this program was presented by Syd Wyncoop in the February issue of THE PLOTTER. As no one from Syd's MC class volunteered to develop a loader program and conversion, our chairman Michael Carver agreed to take the task on. His program follows.

The only variables provided for are the printer codes. Line 230 addresses the question of printed width with the Epson code for graphic printing, 27,"K",0,1. The 27 is the code for ESCape, "K" (code 75) is the graphic code for 60 columns per inch, 0 is the number of columns less than 256, and 1 is the number of increments of 256. The printed image would not be as wide if the 60 is replaced with 72 by changing "K" to your printer's code.

Line 230 also includes the Epson printer code for line feed in increments of 1/72 inch. As Syd explains, 7/72 will print following lines so no white will show between full lines.

The printed width will be about 4.3 inches if the first and last "characters" are 8 pixels wide. This is 256/60.

To change to different codes for your printer, look at line 9994 and pick out 1B 4B 00 01, which is the hex for 27,75,0,1 in dec. The next 3 hex numbers are 1B 41 07 which are 27,65,7 in dec. where 7 is the number of increments of 1/72. Change these hex numbers to the corresponding code numbers for your printer. You will probably find the values in hex in your printer manual. The decimal numbers can be POKEd in starting at address 65122, once the DATA are in memory, then make a corrected save.

>>>>

Once the hex numbers are correctly entered into memory starting at 65024 by entering RUN, SAVE is made by line 150. Change this to fit your storage medium. To use, CLEAR, LOAD "scrdump" CODE (or the name you used), then load your graphic screen\$. Once completed just enter "PRINT USR 65024", being sure the printer is loaded with paper and ready because it will start right off.

This program was tested and the results were rather peculuar. The image was split up horizontally, one line printing left and the next line printing right. I suggest that the reader give it a try and see if it was me or the program.

```
10 REM ****
20 REM * Large Screen Dump *
30 REM * for T/S 2068 *
40 REM * by Syd Wyncoop *
50 REM * for CCAT/S MC SIG *
60 REM * Will print to Epson *
70 REM * type printers *
80 REM * PRINT USR 65024 *
90 REM ****
*
100 CLEAR 65023: RESTORE 9982: LET a$=""
110 LET addr=65024: FOR i=0 TO 1
6: READ d$: LET a$=a$+d$: NEXT i
120 FOR i=1 TO LEN a$-1 STEP 2
130 POKE addr+INT ((i-1)/2),(CODE a$(i)-(48 AND CODE a$(i)<58)-(55 AND CODE a$(i)>64))*16+CODE a$(i+1)-(48 AND CODE a$(i+1)<58)-(55 AND CODE a$(i+1)>64)
140 NEXT i
150 SAVE "scrdump"CODE 65024,130
160 PRINT "Rewind tape to Verify...": VERIFY "scrdump"CODE 65024
,130
200 REM ****
210 REM * Printer control codes
220 REM * at 65122 (7 bytes) *
230 REM * 27,"K",0,1,27,"A",7 *
240 REM * may need to alter for
250 REM * your printer *
260 REM ****
9982 DATA "CD4DFE2100400603"
9983 DATA "0E00C5222EFE1130"
9984 DATA "FE06087E12241310"
9985 DATA "FAC5CD38FEC12A2E"
9986 DATA "FE230D20E6C105C8"
9987 DATA "1100071918DA0000"
9988 DATA "0000000000000000"
```

```
9989 DATA "0E0806082130FEAF"
9990 DATA "CB06172310FACD69"
9991 DATA "FE0D20EEC9AF3281"
9992 DATA "FE2162FE06077ECD"
9993 DATA "69FE2310F9AF3281"
9994 DATA "FEC91B4B00011B41"
9995 DATA "07F5DB7FFED20FA"
9996 DATA "F1D37F3A81FE3D32"
9997 DATA "81FEC03E0DD37F18"
9998 DATA "CC00"
```

## LARKEN LINES

by: ROD GOWEN

We are back again! Christmas is just around the corner and I am sure you are all getting your lists of Larken items you want posted all around the house as gentle hints!

### IT'S FINISHED!!-

LARKEN SEQUENTIAL/RANDOM ACCESS software is finally finished and may be available as you read this! RMG reports that the price will be either \$15 or \$19.95. It will be a BARGAIN at either price! Larry has even taken the time to do a partial index of Time Designs Magazine as the sample data base that will be included with each copy of the software. If you own a LK DOS system, you will HAVE to have this new package as soon as possible. Contact RMG or Larken.

### LARKEN RAMDISK-

IS AVAILABLE AGAIN! After a time during which Larry Kenny told us that, due to the time consumption involved in assembling the units, he could not afford to continue to do so and keep the price at a reasonable level. The rising cost of the 43256 32K ram chips also played a part in his decision not to build them. RMG has worked out a deal with Larken that will allow RMG to sell the unit in 1 of 2 ways: 1. board as a "semi-kit" which would include the pc board, a switch, 1 resistor pak and complete instructions and parts list so that the ADVANCED electronics hobbyist can do his own board. 2. As a complete unit, fully assembled and tested, with or without ram chips. The "semi-kit" will sell for \$19.95 plus shipping and the assembled units will be \$69.95 plus shipping. The cost of ram chips changes to often to quote a price. You must check on those from week to week.

>>>

Got a short Larken related program or modification that you have written? Why not send it in for publication? I am sure that you would be helping a lot of folks.

## BITS & BYTES

by: ROD GOWEN

Heard any TS related news lately? Did you get any information in the mail from other users, user groups, or vendors that may be of interest to our readers? If so, why not share it with us? We need all of the help that we can get. Please send any info that you might have to: Rod Gowen, C/O CCAT/S, 1419 1/2 7th Street, Oregon City, OR 97045, or, phone in at: 503/655-7484, NOON - 10 PM weekdays. I know that the entire user group will appreciate it!

### **LEMKE SOFTWARE DEVELOPMENT-**

**HAS QUIT!!!!**

That's right! Stan Lemke, owner, left a message on Compuserve dated 4/15/89 to the effect that, "due to lack of interest and sales, I am forced to stop supporting the TS market and am placing all of my software into the public domain." This reporter really hates to see this happen as it could send the wrong message to other potential TS supporters. It can lead to serious damage to our base of support. We cannot afford to lose any decent software/hardware developers! If you have a favorite program or hardware product, do your best to support the folks who brought it to you! DON'T LET US LOSE ANY MORE!

### **RMG ENTERPRISES-**

reports that they will be offering the Lemke PD software on cassette or Larken disk. There will be a modest charge for copying and media costs plus shipping. If you are interested, contact RMG at: 1419 1/2 7th Street, Oregon City, OR 97045, 503/655-7484.

### **THE SOLUTION-**

the MS-DOS emulator for the QL, is now being shipped! RMG has received (and shipped out) over 1 dozen copies of this new package so far and is taking orders from any and all! It may not be the fastest way to use MS-DOS, but it is a way to go if you have already made MAJOR investments in your QL system! If you are interested in this package contact RMG at the above address.

### **ZEBRA SYSTEMS-**

as reported earlier, is planning to "dump out" of the TS market "as soon as we can!". This seems to say, that, as soon as they are through with the CapitolFest in May, they will be GONE! Not accepting ANY orders after that show is what you will find. At present, they will not honor any order for less than \$25!

### **NATIONAL SINCLAIR ECHOMAIL?-**

YES!!!! We can have it soon if we get your help! THE BULL PEN BBS has set up the first ECHOMAIL area devoted to Sinclair users the world over in the country. (At least, as far as we know) BUT!!!!--In order for it to go NATIONAL so that any BBS in the country can pick it up off the HUB, we need your help! The HUB will not accept us or put our EchoMail area on the national list until we can show them that we can generate at least 20 messages per day on this BBS. If you would like to see this service expand to a national Echo, PLEASE, give the BBS a call and leave a message on the SINCLAIR USERS UNITE! ECHOMAIL area in the National Echo section. Call: 503/652-5803 24 hours/day 8/1/N.

### **TIME DESIGNS MAGAZINE-**

Had a great surprise for us at the last CCAT/S meeting on 4/14! Tim Woods brought us copies of VOL. 5, NO. 1 of TDM! RIGHT! TDM LIVES!

We want all of you doubters out there to know that Tim has stated his intentions to continue and to make the magazine better than ever! We have confidence in the ability of the TDM staff to do just that. He stated that he had hopes to have VOL. 5, NO. 2 ready to take along to the CapitolFest next month. We hope he does!

### **CCAT/S DINNER MEETING-**

Will be held at GATES RESTAURANT at the corner of Jennings Ave & McLoughlin Blvd (99E). See info elsewhere this n/l. Hope to see you all there!

**Take Care Till Later-**

**See you next time-**

## SECRETARY'S SECRETS

The meeting was called to order by Michael Carver shortly before 8 PM. The Treasurer's report was given and all of the dues have been paid, and we have 19 newsletter subscriptions besides newsletter exchanges.

The voting on the organization rules has been tabled until the June meeting, when the club members will have had time to go over them.

The dinner meeting will be held at Gates on McLaughlin Blvd. May 12th at 7 PM. Pardon - should not have said meeting, its supposed to be a social affair.

Continuing with old business someone asked if anyone had heard any news on SNUG. No one had any real news to offer.

There was mention of someone who does computer repair on many types. Mc Knight, 8044 S E Harold St.

Our guest speaker was Bob Currie of Remember When BBS. For those of us that have not used our modems as well or as often as we could, Bob's talk gave us a lot of food for thought as to why we should get our modems out of the closet and make that call NOW!

Galen suggested that those who would like to order from overseas to combine their orders to save on money order fees. His converter program will be included in the next issue of Time Designs.

Tim Woods said that the issues of Time Designs should be coming along a little faster and should soon be up to date. He is no longer dating the issues but listing them by volume number.

There was a general discussion on the use of BBS's and the meeting was adjourned a little after 9:30 PM

Sincerely,  
Betty Schaffler, Secretary

## --MAKE A LOGO--

Dick F. Wagner

Several times I have mentioned the need to redo the logos used on the front page of THE PLOTTER. There have been no volunteers so this is my solution for the plotting logo used at the top of the page.

The original dates back almost 7 years and it was made on the old ZX printer with silver paper. This printer produced a nice print with the ratio very close to 1. The 2040 has a ratio of about 1.24 to 1, W to L so a factor must be used to get a square print. This produces a problem in graphics as the diagonal lines in the graph must have 90 degree corners, based on the bouncing ball concept.

I have not been able to use a printer driver program as my printer will not print reverse characters. A screen copy seemed to be the solution because this would permit the use of inverse characters. All of the screen copies I have made lacked any control on width and image placement on the sheet. Keep in mind that this is duplicating, not producing an original.

The January issue of UP-DATE! magazine provided the solution with a program by Stan Lemke. This program provides for changing and/or adding more printer codes. It starts out with the printer density of 72 in place of the usual 60. This brought the ratio very close to 1 for the print-out. I needed to print the image on the right side of the page instead of the usual left side. This was accomplished by adding a left margin command. Printer commands are added to the Lemke program by changing line 100 by increasing the first number by the added value and then inserting the several numbers of the command, or by adding a new DATA line and READING it with a new READ line similar to line 200, changing the RESTORE line number to the new DATA line.

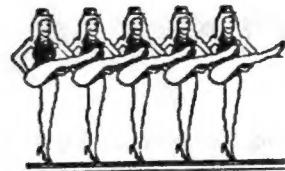
>>>

The program for the screen image is straight forward using the computer graphics keys. This program is saved as well as a screen\$. The Lemke program requires the use of the TIMACHINE compiler. The compiled program is saved so it need not be put thru the compiling process each time. The Lemke loader is used to load both the compiled program and the screen\$. It auto runs and requires about 30 seconds for each line to be sent to the printer. CCAT/S members have the UP-DATE! magazine in the library if they do not subscribe.

```

60 REM set left margin at 38
70 LPRINT CHR$ 27;CHR$ 108;CHR
$ 38
100 PRINT AT 0,0; " "
110 PRINT AT 18,0; " "
120 PRINT AT 21,0; " "
130 PRINT AT 0,0; " "
140 PRINT AT 0,31; " "
150 FOR n=1 TO 20
160 PRINT AT n,0; " "
165 PRINT AT n,31; " "
170 NEXT n
180 PRINT AT 21,0; " "
190 PRINT AT 21,31; " "
200 PRINT AT 19,4; "COMPUTING TH
E FUTURE--"
210 PRINT AT 20,9; "IN CLACKAMAS
COUNTY"
250 FOR N=1 TO 17
260 PRINT AT N,16-N; " "
270 NEXT N
300 FOR N=1 TO 12
310 PRINT AT N,N+18; " "
320 NEXT N
350 FOR N=1 TO 4
360 PRINT AT N+13,31-N; " "
370 NEXT N
400 FOR N=1 TO 17
410 PRINT AT N,9+N; " "
420 NEXT N
450 FOR N=1 TO 3
460 PRINT AT N,10-N; " "
470 NEXT N
500 PRINT AT 4,2; INVERSE 1;"C"
; INVERSE 0;"CLACKAMAS"
510 PRINT AT 5,2; INVERSE 1;"C"
; INVERSE 0;"OUNTY"
520 PRINT AT 6,2; INVERSE 1;"A"
; INVERSE 0;"REA"
530 PRINT AT 7,2; INVERSE 1;"T"
; INVERSE 0
540 PRINT AT 8,2; "/"
550 PRINT AT 9,2; INVERSE 1;"S"
; INVERSE 0
560 PRINT AT 10,2; "USERS"
560 PRINT AT 10,13; INVERSE 1;"THE"
; AT 13,11;"PLOTTER"; INVERSE
0

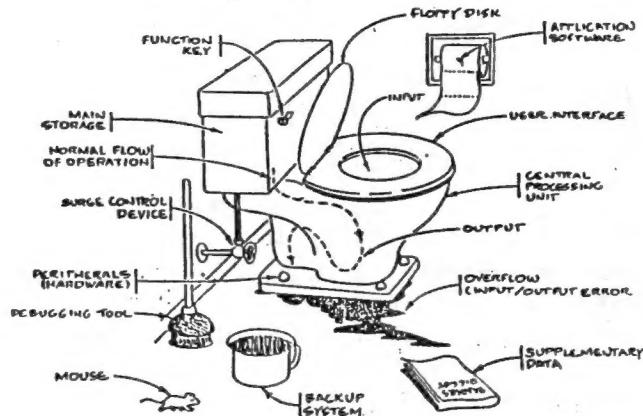
```



Now that we have  
your attention...

At a recent meeting our chairman Mike Carver passed around this diagram to better define certain computer terms. I'm sure it will help those of us who are weak on computer terminoligy to be better able to understand discussions going on during business meetings.

#### Understanding the technology



#### FROM THE EDITOR'S DESK

This month we forgo a regular business meeting and do some socializing. Members will recall that the November meeting was moved to Elmer's Pancake House at the top of the hill in Oregon City (due to yours truly forgetting to get the meeting room key before the bank closed). This is kind of an expansion of that episode, but planned, thanks to Bob Evans. It will be interesting to see how well it is attended as lack of interest will cause the idea to be abandoned.

>>>>

At the April meeting the after business meeting activity was highlighted by Ed Fry's 3 wheeled computer controlled robot. As far as I know, Ed is the first member of CCAT/S to come up with a working model of any kind of robot. The computer system was a TS 1500 computer operating relays to control the motors. As usual, the electrical interference in the meeting room caused strange and unpredictable results. The wheel system was a bit deficient in weight carrying capacity but that will be rectified in the future. All very interesting. Ed is sure demonstrating many different ideas for these little computers. He has produced a fine series on computer control in Time Designs magazine, has demonstrated several ideas for break-in alarm systems, and has produced a useable kit for the hobbyist. It seems that Ed has demonstrated more activity along these lines than any of our other members. And he has such good prices on parts, too!

The loss of another firmware company, Stan Lemke, makes one wonder about the uses computer owners put their computers to. The lack of sales is a continual problem when there are only so many TS users out there. I suspect that there are far fewer actual "users" than one would believe. Ownership does not mean active use with ever expanding utilization for many. The ability to "gadget" a TS computer is not for everyone, either. I am probably the odd-ball computer user who does not buy a great quantity of programs but spends for hardware. The program cost has been an advantage with TS programs, but let's face it, memory capacity has a great deal to do with the kinds of programs that are on the market. We want simple-to-use programs that will match the programming ability of those clones, etc. Some of us have a specific purpose in mind when we look at a program or just an ad, others buy to obtain the latest.

Some writers in magazines have pointed out the fallacy of believing a new or up-dated program should be better than the one that has been used for some years. We get comfortable with a particular word processor that does what we need, so why change. Or that seldom used spread sheet serves its purpose. There are some programmers who have improved their products over a period of use, keeping in mind the ultimate user's requirements. A relatively small cost can often update a program. With our system of distribution for TS supplies there is only one way to try an improved version and that is to buy from the few dealers left, or purchase directly from the programmer. I have found such improvements well worth while. As an example, the word processor MSCRIPT as originally supplied to the market was OK except when comparing it with more powerful WP programs. Jack Dohany has made several improved versions, each better than the last. In his case, he depends on the user to spell out improvements desired to meet a particular challenge. Then add the need for different storage mediums, first the cassette, then the A & J microdrive, the first disk drive systems, then newer and improved DOS. The programmer has a real challenge to meet all of these changes and sometimes the original program does not lend itself to all of these changes.

The bottom line for TS users seems to be innovation at least cost, which is probably why we bought these computers in the first place. Let's hope that the few dealers and suppliers left are able and willing to carry on. These people are mainly carrying on a one-man business (often part time). They warrant your support.

The advent of MS-DOS availability to the expanded QL is another challenge for us head scratchers. I am finding each step up in equipment to be a further test of my ability to study and understand, in other words, using the old gray matter. Being retired, I believe my computers eliminate boredom from my life.

\*\*\*\*\*

## FOR SALE--QL DISK INTERFACE

I have one Technology Research DELTA interface.

The interface will support 4 drives and has a built-in parallel printer port. It supports RAM disks and has a number of extensions. It has the option of an extra 128K of memory. I will include the 4 extra memory chips and a printer cable for parallel printer. Price--\$150.00.

If you have any interest in this system, please contact me at: (503)669-0639 between 2:00 PM and 9:00 PM daily.

Gaylen Bench  
900 N.W. Mawrcrest Dr. #110  
Portland, OR 97030

## -NOTICE-

Opinions expressed in articles are not necessarily those of members of the Clackamas County Area T/S User Group. Meeting minutes carry the concensus of members present at meetings. This newsletter nor staff will be held liable for any damage or consequences due to following instructions, or review of products as contained in this newsletter.

### SUBSCRIPTION RATE

---

FREE SUBSCRIPTION WITH PAID  
CCAT/S MEMBERSHIP-\$20.00/YR

---

### PLACE YOUR AD HERE

#### AD RATES

\*\*\*\*

1 FOUR LINE CLASSIFIED FREE  
WITH MEMBERSHIP

---

\$ .50 / PAGE  
\$ 5.00 / 1/4 PAGE  
\$ 8.00 / 1/2 PAGE  
\$15.00 / FULL PAGE

ALL AD COPY MUST BE IN BY THE  
10 TH OF THE MONTH PRIOR TO  
THE MONTH AD IS TO RUN.

\*\*\*\*\* -8- \*\*\*\*\*

CCAT/S  
1419 1/2 7TH Street  
Oregon city, OR 97045

(place label here)

At the April meeting the after business meeting activity was highlighted by Ed Fry's 3 wheeled computer controlled robot. As far as I know, Ed is the first member of CCAT/S to come up with a working model of any kind of robot. The computer system was a TS 1500 computer operating relays to control the motors. As usual, the electrical interference in the meeting room caused strange and unpredictable results. The wheel system was a bit deficient in weight carrying capacity but that will be rectified in the future. All very interesting. Ed is sure demonstrating many different ideas for these little computers. He has produced a fine series on computer control in Time Designs magazine, has demonstrated several ideas for break-in alarm systems, and has produced a useable kit for the hobbyist. It seems that Ed has demonstrated more activity along these lines than any of our other members. And he has such good prices on parts, too!

The loss of another firmware company, Stan Lemke, makes one wonder about the uses computer owners put their computers to. The lack of sales is a continual problem when there are only so many TS users out there. I suspect that there are far fewer actual "users" than one would believe. Ownership does not mean active use with ever expanding utilization for many. The ability to "gadget" a TS computer is not for everyone, either. I am probably the odd-ball computer user who does not buy a great quantity of programs but spends for hardware. The program cost has been an advantage with TS programs, but let's face it, memory capacity has a great deal to do with the kinds of programs that are on the market. We want simple-to-use programs that will match the programming ability of those clones, etc. Some of us have a specific purpose in mind when we look at a program or just an ad, others buy to obtain the latest.

Some writers in magazines have pointed out the fallacy of believing a new or up-dated program should be better than the one that has been used for some years. We get comfortable with a particular word processor that does what we need, so why change. Or that seldom used spread sheet serves its purpose. There are some programmers who have improved their products over a period of use, keeping in mind the ultimate user's requirements. A relatively small cost can often update a program. With our system of distribution for TS supplies there is only one way to try an improved version and that is to buy from the few dealers left, or purchase directly from the programmer. I have found such improvements well worth while. As an example, the word processor MSCRIPT as originally supplied to the market was OK except when comparing it with more powerful WP programs. Jack Dohany has made several improved versions, each better than the last. In his case, he depends on the user to spell out improvements desired to meet a particular challenge. Then add the need for different storage mediums, first the cassette, then the A & J microdrive, the first disk drive systems, then newer and improved DOS. The programmer has a real challenge to meet all of these changes and sometimes the original program does not lend itself to all of these changes.

The bottom line for TS users seems to be innovation at least cost, which is probably why we bought these computers in the first place. Let's hope that the few dealers and suppliers left are able and willing to carry on. These people are mainly carrying on a one-man business (often part time). They warrant your support.

The advent of MS-DOS availability to the expanded QL is another challenge for us head scratchers. I am finding each step up in equipment to be a further test of my ability to study and understand, in other words, using the old gray matter. Being retired, I believe my computers eliminate boredom from my life.

FOR SALE--QL DISK INTERFACE

-NOTICE-

I have one Technology Research DELTA interface.

The interface will support 4 drives and has a built-in parallel printer port. It supports RAM disks and has a number of extensions. It has the option of an extra 12BK of memory. I will include the 4 extra memory chips and a printer cable for parallel printer. Price--\$150.00.

If you have any interest in this system, please contact me at: (503)669-0639 between 2:00 PM and 9:00 PM daily.

Gaylen Bench  
900 N.W. Mawrcrest Dr. #110  
Portland, OR 97030

Opinions expressed in articles are not necessarily those of members of the Clackamas County Area T/S User Group. Meeting minutes carry the concensus of members present at meetings. This newsletter nor staff will be held liable for any damage or consequences due to following instructions, or review of products as contained in this newsletter.

**SUBSCRIPTION RATE**

**FREE SUBSCRIPTION WITH PAID  
CCAT/S MEMBERSHIP-\$20.00/YR**

**PLACE YOUR AD HERE**

**AD RATES**

\*\*\*\*

**1 FOUR LINE CLASSIFIED FREE  
WITH MEMBERSHIP**

**\$ .50 / PAGE  
\$ 5.00 / 1/4 PAGE  
\$ 8.00 / 1/2 PAGE  
\$15.00 / FULL PAGE**

**ALL AD COPY MUST BE IN BY THE  
10 TH OF THE MONTH PRIOR TO  
THE MONTH AD IS TO RUN.**

CCAT/S  
1419 1/2 7TH Street  
Oregon city, OR 97045

ROD GOWEN (TREASURER)  
1419 1/2 7TH STREET  
OREGON CITY, OR 97045  
A0003:12<89/ML